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Production Nearshoring in Europe and their consequences to the Supply Chain

Müller-Dauppert, Bernd[1]

ABSTRACT: The objective of this paper is to investigate the geographical relocation of the production function in nearby countries called Nearshoring. After some basic definitions and showing the past development, the theoretical background of the location decision was stated. Based on an empirical survey among German manufacturing companies the decision criteria were evaluated. Furthermore, the current and future applying of Nearshoring and the preference of current and future locations were investigated. Finally, the consequences for the Supply Chain were described. A SWOT analysis offers a framework for manufacturing companies in Europe and especially in Germany with strategic insights and advices how to position their production plants in the near future. Nearshoring attractive countries like Hungary shall gain directions how to prepare themselves for this trend in order to be able to deliver skilled employees and an attractive environment.

KEYWORDS: offshoring, onshoring, outsourcing, insourcing, Germany, location decision

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Introduction

In the last few years numerous manufacturing companies reversed their offshored decisions which is recognized in the economic press, in consulting firms' reports and in the public discussion but with lagging academic interest (Fratocchi–Di Mauro–Barbieri–Nassimbeni–Zanoni, 2014, p. 54).

The increasingly growing demands of the customers on the uniqueness of the product and a short delivery time may lead in conjunction with modern production methods such as 3D-printing to the lot size 1, and to a new trend: Nearshoring.

The aim of this paper is threefold. First, it attempts to clarify some definitions because of lacking shared definitions in this context and shows

[1] Bernd Müller-Dauppert PhD student, University of West Hungary, Faculty of Economics, Sopron. E-Mail: mueller-dauppert@miebach.com

the past development. Second, the academic background for supporting this decision will be outlined. Finally based on an empirical research on German manufacturing companies the following three questions will be answered:

- Which decision criteria are relevant for the Offshoring or Nearshoring decision?
- Is Offshoring and Nearshoring applied and where are the locations for Offshoring or Nearshoring?
- What are the consequences for the Supply Chain?

Definitions and past development

While In- or Outsourcing compares own creation with using suppliers for products or external service providers for processes (Dittrich–Braun, 2004, p. 7), the place of performance is considered with X-shoring (Lippold, 2016, p. 39).

The geographical move of organizational units, still under full control of the company, distinguishes depending on the distance of the geographical shift between the following variants (Lippold, 2016, p. 39; Mlody, 2016, pp. 32-34):

- *Onshoring, Homeshoring, Reshoring, Backshoring:* geographical relocation of business functions and processes to another location within one's own country;
- *Nearshoring:* geographical relocation of business functions and processes in surrounding or nearby countries;
- *Offshoring:* geographical relocation of business functions and processes in more distant countries.

In this context Offshoring has to be separated from Offshore-Outsourcing, where functions are transferred to an external supplier in an Offshore region (Wullenkord, 2005, p. 44).

Trigger for the X-shoring decision are to reduce costs, the development of markets, as well as the acquisition of technology and know-how (Wildemann, 2007, p. 44).

While early 80s the manufacturing depth was reduced by outsourcing the production of parts to local suppliers, in the 90s the products were procured from abroad or the production moved abroad (Wildemann, 2007,

p. 35; Kusaba–Moser–Rodrigues, 2011, p. 73). After the turn of the Millennium a shift from production sites and sourcing for the cheapest labor costs with comparable conditions took place (Wildemann, 2007, p. 35).

In the 2010 years new insights were gained, that the entire cost, product and service quality, as well as other factors must be included in the decision and this overall picture often led to a Nearshoring or even Onshoring, Homeshoring (Leibl–Morefield–Pfeiffer, 2011, p. 74; CSCMP, 2014, p. 38; Trunick–Dittman 2014, p. 24). Primarily in the US but also in Europe and even in Asia, manufacturers consider Nearshoring in the meantime (Blanchard, 2011, p. 40; Mlody, 2016, p. 30). Especially factors like increasing transportation costs, increasing labor costs in the Offshore countries (convergence in wages) and increasing theft of intellectual property started to influence the location decision (Levy, 2005, p. 691; Ellram–Tate–Petersen, 2013, p. 14). Also lower worker skills and higher fluctuation rates were detected as Offshoring challenge (Bock, 2008, p. 490).

Basically Offshoring was still interesting, if the share of personal cost in the production was high, the demand was stable and easy to forecast and the logistics costs (inventory, warehouse, transport, coordination) where low (Wullenkord, 2005, p. 58). Furthermore, it was expected that lower costs offer lower prices for consumers as a consequence will create new business and increase revenue (Farrell, 2005, pp. 682-683).

Actual research and trend studies notice that organizations have begun to repatriate manufacturing processes in order to improve demand flexibility, lead time, quality and to reduce inventory, transport and coordination costs (McIvor, 2013, p. 23; McCue, 2014, pp. 41-42; UNCTAD, 2013, p. 26; Arlbjørn–Mikkelsen, 2014, p. 61).

Nearshoring regions are not homogenous and static (Slepniov–Brazinskas–Waehrens, 2013, p. 9). They mostly start as emerging markets with lower tax burdens and production cost advantages and may develop to developed economies, associated with wage inflation and technological and environment upgrades, requiring changes in the operations strategies of the foreign companies located there (Slepniov–Brazinskas–Waehrens, 2013, p. 9).

Current trend studies showing that modern production techniques, which allows to produce efficiently in small batches and to take into account individual customer wishes, significantly increase in the near future

and thus Nearshoring and Onshoring, Homeshoring becomes an upward trend (Fraunhofer, 2013, p. 43; DHL, 2016, p. 20).

However, on the subject of Nearshoring or Onshoring / Homeshoring there are neither recent studies in Europe nor an appropriate assessment in the management literature or in science (Slepniov–Brazinskas–Waehrens, 2013, p. 6 and p. 21; Mlody, 2016, p. 30).

The key-word search for "Nearshoring" in all journals of the Business Source Complete database provided by EBSCO Host within the time horizon 2004–2016 filtered out 70 articles. Filtering out 2 definitions and doubles, 28 articles about non production activities like Information Technology and 23 articles with regional focus on Northern America, only 8 articles with global or European regional focus and general or production process focus were left.

Theoretical background

X-shoring can be seen basically as a location decision (Gray–Skowronski, Esenduran–Rungtusanatham, 2013, p. 28). Location choices play an essential role in international business strategies (Roza–Van den Bosch–Volberda, 2011, p. 315).

Early theories about location choices such as from Johann von Thünen (1826) and Alfred Weber (1909) were conducted in an agrarian or early industrial context and focused on transportation costs (Ballou, 1992, pp. 324-325).

Dunning focusses in his research on the location decision of multinational enterprises and he explicates that the location decision for an activity is primarily determined by the costs and benefits of adding value to these products in the two locations (Dunning, 1998, p. 45). In his eclectic theory of international production, Dunning proposed three determinants of international production by multinational enterprises: ownership advantages, location advantages, and internalization advantages (Dunning, 1980, pp. 13). Within the category of location advantage Dunning identifies the following types of advantage (Dunning, 1980, p. 13):

- *Resource-based:* Possession of resources;
- *Import substituting manufacturing:* Material costs, labor costs, markets and government policy;

- *Export platform manufacturing:* Low labor costs; incentives to local production provided by host governments;
- *Trade and distribution:* Local Markets; improved market access through closer proximity to customers.

Dunning extended his ownership–location–internalization (OLI) framework after some criticisms toward his eclectic paradigm with the following new factors (Dunning, 1988, pp. 10-13; Dunning, 1998, pp. 60-66):

- *Resource seeking advantage:* still concerns availability of raw materials and infrastructure, but now local partners are also seen as important resources;
- *Market seeking advantage:* concerns the availability and cost of local labor and suppliers, quality of infrastructure and government economic policies;
- *Efficiency seeking advantage:* concerns production cost-related factors, specialized industry cluster and government removal of trade barriers;
- *Strategic asset seeking advantage:* considers knowledge related assets and synergies related to maintaining a local presence.

Dunnings revision of his theory reflects the trend in the manufacturing location research from the focus of low labor cost and financial diversification toward new value creation (Ellram–Tate–Petersen, 2013, p. 16).

In order to support the X-shore decision, the transaction cost economics (TCE) and the resource based view (RBV) can be applied (Jahns–Hartmann–Bals; 2006, pp. 225-227; Roza–Van den Bosch–Volberda, 2011, pp. 315-317; McIvor, 2013, p. 23). Changing the location and especially to other countries increases the transaction cost because of uncertainty and because of additional coordination-, information- and communication effort (Roza–Van den Bosch–Volberda, 2011, pp. 316; Coase, 1937; Williamson, 1979). The resource based view focusses on knowledge and efficiency in order to improve the competitiveness of the company (Roza–Van den Bosch–Volberda, 2011, pp. 316; Prahalad–Hamel, 1990).

In contrast to these macro perspective approaches of positioning in a general area, the location decision on a micro perspective considers more specific factors (Lambert–Stock, 1992, p. 311 and p. 314). Activities are located depending on the firm demands and the location characteristics (Roza–Van den Bosch–Volberda, 2011, p. 315). There are many decision

criteria ranging from cost savings to growth (Roza–Van den Bosch–Volberda, 2011, p. 315). Also environmental issues and global corporate responsibility are growing concerns (Mueller–Abfalter–Hautz–Hutter–Matzler–Raich, 2011, pp. 122–128; Doh, 2005, pp. 701–703).

Basically the following groups of factors affecting the X-shoring decision (Kamann–Van Nieulande, 2010, p. 67; Gray–Skowronski–Senduran–Rungtusanatham, 2013, p. 28; Mlody, 2016, p. 35-38; Kinkel–Maloca, 2009, p. 159):

- *Costs:* Wage costs, nonwage costs, tax, customs, duties and antidumping tariffs;
- *Competence:* Performance, education, training, innovation;
- *Quality:* Product and packaging quality;
- *Logistics:* Logistics costs, lead time, infrastructure, Supply Chain stability;
- *Risks:* Cost development, quality, production disruption, crime, safety, currency, intellectual property, institutions, political and macro-economic stability;
- *Cultural:* Cultural, language, time zone differences;
- *General investment climate:* Subsidies, public promotions;
- *Corporate responsibility:* Use of child labor, safety and pollution, and corruption;
- *Supply and Market:* Distance to the suppliers and customers.

Despite the fact that it is easier to collect monetary information such as wage levels, working hours, taxes or subsidies, it is dangerous not to evaluate qualitative factors crucial for the company's success (Kinkel–Maloca, 2009, p. 160). German studies showed that, while the reduction in labor costs was the main motive for moving production abroad, the key reasons for reshoring were mainly qualitative factors: problems in flexibility, delivery ability, transport/logistics costs and quality. (Kinkel–Maloca, 2009, p. 159; Kinkel, 2012, pp. 705-706; Kinkel, 2014, p. 64).

The literature review identified the lack of a framework that specially addresses the decision criteria for the different strategies and especially their implication to the Supply Chain.

Methodology

In order to address the research issues, a survey among German manufacturing companies was conducted.

Therefore, a questionnaire was sent out in two waves in July and August 2016 to 3,226 managing directors, production and logistics responsibles from different industries.

The questionnaire was comprised of six sections. The first section was to categorize the companies. The second section was to categorize the product characteristics and the production organization. The third section contained questions on the extent, regions and reasons for Offshoring, Nearshoring and Onshoring. The forth part was about social environment and the fifth one about the trends and future developments. The final section treated the competitive environment of the companies.

All questions asking for a ranking used a 5 point Likert Scale for responses.

A total of 71 usable surveys were returned. The low response rate (2.2%) may have been due to the very special topic of the survey. Despite the low response rate, it should be noted that a wide spread of representatives through the industrial segments and the company sizes exists.

Table 1: **Distribution of survey respondents among industrial segments compared to the distribution of the employers in Germany**

Industrial segment	Number of respondents	Number of respondents in % of Total	Number of employees employed in Germany in % of Total
Automotive manufacturer	5	7	21
Automotive supplier	14	20	
Construction materials	4	6	3
Consumer goods and electronics	10	14	31
Electrical and high tech industry	8	11	9
Fashion and Lifestyle	15	21	2
Mechanical and plant engineering	11	15	22
Metal industry and processing	4	6	12
Total	71	100	100

Source: Own survey, survey question Q2 (n=71) and DESTATIS 2016

A significantly higher or lower share of participants in comparison to the share or representation, measured with the number of employees in the industrial segment (DESTATIS 2016) in the German industry sector, is detected just for "consumer goods and electronics" and for "Fashion and Lifestyle". In the other 6 industries, there were no significant differences between the sample and the number of employees in Germany.

Finally, our survey respondents represented all company sizes.

Table 2: **Distribution of survey respondents concerning company size measured in turnover of business year 2015**

Company size	Number of respondents	Number of respondents in % of Total
< 50 m €	7	10
50 m – 250 m €	18	25
250 m – 500 m €	13	18
500 m – 1 bn €	6	9
1 bn – 10 bn €	16	23
> 10 bn €	11	15
Total	71	100

Source: Own survey, survey question Q3 (n=71)

Also concerning the product characteristics and the production organization, all categories are represented, even if products with higher complexity are more in focus.

Table 3: **Product characteristics and the production organization (Multiple answers possible)**

Production organization	Simple products	Products of medium complexity	Complex products
Individual production [1-100 pieces/year]	0.8%	10.1%	14.7%
Small batch production [100-3,000 pieces/year]	0.8%	10.9%	10.9%
Medium batch production [3,000-50,000 pieces/year]	2.3%	17.8%	5.4%
Mass production [>50,000 pieces/year]	7.7%	8.5%	10.1%

Source: Own survey, survey question Q8 (n=62)

More than half of the companies (52.5%) are conducting customized production, assembly or finalizing. Most of the participating companies have a broad and deep assortment with customized articles. In addition, there are high standards of service and high price sensitivity.

Almost all companies (90.3%) have multiple locations, locations in several countries in Europe (82.2%), two-thirds (63.9%) are even global.

Survey Results

The respondents were asked to indicate if they use Offshoring (55.8%); Nearshoring (54.9%) and Onshoring (38.8%), which shows an already established use of at least Offshoring and Nearshoring, but also Onshoring.

Table 4: **Grade of employing the Offshoring, Nearshoring, and Onshoring strategy**

	Offshoring	Nearshoring	Onshoring
Yes	55.8%	54.9%	38.8%
No	44.2%	45.1%	61.2%

Source: Own survey, survey question Q12 (n=52)

Survey respondents were asked to explain why they are employing the Offshoring, Near-shoring, and Onshoring strategy.

The Offshoring strategy is determined from the total cost and here in particular from the production and personnel costs.

Also the Nearshoring strategy is chosen on the basis of the total costs as well as production and personnel costs. In addition, the delivery time plays an important role and the availability of qualified employees is another important reason for the choice of this strategy.

The Onshoring strategy is clearly necessary in order to fulfil delivery time requirements. But the overall costs and the availability of qualified staff are additional reasons for choosing this strategy.

The logistics costs are important in all three strategies, but are only on 4th to 7th place.

Table 5: **Reasons for employing the Offshoring, Nearshoring and Onshoring strategy**

Reasons for X-Shoring	Offshoring	Nearshoring	Onshoring
Total expenses	100.0%	96.0%	66.7%
Production costs	92.3%	72.7%	60.0%
Staff costs	85.2%	72.7%	43.8%
Logistics costs	50.0%	47.6%	60.0%
Customs / duties	47.8%	22.2%	33.3%
Delivery time	38.5%	71.4%	80.0%
Availability of qualified manpower	34.8%	63.6%	66.7%
Legal regulations and legislation	33.3%	25.0%	23.1%
Working capital	19.0%	45.0%	35.7%
Political stability	17.4%	47.4%	20.0%
Cultural aspects	17.4%	16.7%	14.3%
Production quality	9.5%	50.0%	53.3%
Ecological aspects	9.5%	22.2%	0.0%
Patent protection	9.5%	5.6%	0.0%
Labor protection, labor unions	9.5%	5.6%	0.0%
Time zone differences	4.8%	21.1%	21.4%
Security	0.0%	26.3%	28.6%

Source: Own survey, survey questions Q14, Q17 and Q20 (n=27)

Comparing the strategies with each other, in particular the factors of working capital, political stability, but also ecological aspects, time zone differences and security are supporting Nearshoring and partly Onshoring in comparison to Offshoring.

An additional question provided survey participants with a list of continents and regions, and the question in which regions they use Offshoring, Nearshoring and Onshoring?

Table 6: **Continents and their use of Offshoring**

Continents	Exclusively	To a high extent	To a medium extent	To a minor extent	Not at all
Asia	11.1%	29.6%	37.0%	11.1%	11.1%
Europe	0.0%	17.9%	39.3%	35.7%	7.1%
America	0.0%	7.7%	19.2%	30.8%	42.3%
Africa	0.0%	8.0%	0.0%	8.0%	84.0%

Source: Own survey, survey question Q13 (n=28)

Asia dominates clearly the Offshoring strategy. Europe has a larger meaning when Offshoring only for nearly every fifth respondent company. America has no or only a low importance in Offshoring and Africa has a higher relevance only for two respondent companies.

Table 7: **Continents and their use of Nearshoring**

Continents	Exclusively	To a high extent	To a medium extent	To a minor extent	Not at all
Asia	0.0%	0.0%	18.8%	18.8%	62.5%
Europe	8.0%	16.0%	40.0%	28.0%	8.0%
America	0.0%	18.8%	0.0%	12.5%	68.8%
Africa	0.0%	0.0%	7.1%	0.0%	92.9%

Source: Own survey, survey question Q16 (n=25)

The respondents rated Europe as the most important continent for applying the Nearshoring strategy. America has a higher meaning in Nearshoring too, but for no respondent a medium use. Nearshoring in Asia has a medium importance for almost every fifth respondent company and Africa has no meaning for Nearshoring.

Table 8: **Continents and their use of Onshoring**

Continents	Exclusively	To a high extent	To a medium extent	To a minor extent	Not at all
Asia	0.0%	0.0%	16.7%	25.0%	58.3%
Europe	11.8%	5.9%	35.3%	17.6%	29.4%
America	0.0%	0.0%	0.0%	16.7%	83.3%
Africa	0.0%	0.0%	8.3%	0.0%	91.7%

Source: Own survey, survey question Q19 (n=17)

As with the Nearshoring, Europe predominates at the companies surveyed for Onshoring. Asia comes in almost every fifth company surveyed at least still in the middle range for Onshoring, whereas America and Africa have no relevance for Onshoring to the responding companies.

Due to the fact that Europe was rated as the most important continent for applying the Nearshoring strategy, we take a deeper look into the selected countries.

Table 9: **Regions of Europe and their use of Nearshoring**

Regions of Europe	Exclusively	To a high extent	To a medium extent	To a minor extent	Not at all
Central Europe	11.8%	5.9%	11.8%	29.4%	41.2%
Eastern Europe	4.5%	9.1%	40.9%	31.8%	13.6%
Western Europe	5.9%	5.9%	23.5%	23.5%	41.2%
South-East Europe	0.0%	5.3%	21.1%	31.6%	42.1%
Southern Europe	0.0%	0.0%	13.3%	33.3%	53.3%
Northern Europe	0.0%	0.0%	6.7%	13.3%	80.0%

Source: Own survey, survey question Q16 (n=25)

According to respondents, the greatest significance for Nearshoring has central Europe, which includes the countries Germany, Poland, Czech Republic, the Slovakia and Hungary in this study.

But Eastern Europe and Western Europe are very attractive for Nearshoring for some respondents as well. South-East Europe is considered in some companies at least to high extend selected. Southern Europe and Northern Europe are far behind in their meaning for Nearshoring.

The following section asked survey participants to rate the influence of the social environment to the production.

Table 10: **Social topics and their influence to the production**

Social topics	To a very high extent	To a high extent	To a medium extent	To a minor extent	Not at all
Labor market trend	15.2%	32.6%	23.9%	19.6%	8.7%
Working hours' flexibility	6.5%	23.9%	26.1%	19.6%	23.9%
Minimum wage	10.9%	15.2%	4.3%	21.7%	47.8%
Environmental protection	6.5%	19.6%	39.1%	21.7%	13.0%

Source: Own survey, survey question Q24 (n=46)

Survey findings reveal that the labor market development, so the availability of skilled and motivated employees is seen as the most important social trend for the production. Three quarters of the participants look at this topic at least as important to a medium extent.

The fifth and the final section of the survey about the trends and future developments and the competitive environment started with the question about the company position in relation to the competition based on different factors.

Table 11: **Company positioned in relation to the competition**

Competitive situation	Advantage	Neutral	Disadvantage
Quality standards	69.6%	28.3%	2.2%
Availability of technical systems	45.7%	41.3%	13.0%
Short term flexibility of demand changes	39.1%	45.7%	15.2%
Adaptivity of changed market requirements	35.6%	57.8%	6.7%
Promptness of product ramp-up	17.4%	56.5%	26.1%
Low cost per unit	15.2%	54.3%	30.4%

Source: Own survey, survey question Q30 (n=46)

The quality standards and the availability of technical systems are seen as the main competitive advantage. Short term flexibility and adaptivity to changing market requirements are addition important competitive factors. The price of the product plays an important competitive advantage only for about every seventh respondent company.

Due to the fact that technical systems were seen as important competitive advantage, the next question about the trends of production methods expected by the survey participants were highly interesting.

Especially the automated manufacturing is seen by more than half of the respondents as a relevant trend influencing their production in future. But also the use of new IT technology, automated assembly, robot use and Digital Factory 4.0 are important or very important trends for the production in future.

Table 12: **Importance of trends concerning the production methods**

Trends in production methods	To a very high extent	To a high extent	To a medium extent	To a minor extent	Not at all
Automated manufacturing	24.4%	31.1%	17.8%	17.8%	8.9%
New IT Technology	11.1%	20.0%	37.8%	31.1%	0.0%
Automated assembly	9.1%	20.5%	27.3%	22.7%	20.5%
Robot use	9.1%	27.3%	25.0%	29.5%	9.1%
One piece flow	6.8%	20.5%	36.4%	22.7%	13.6%
Digital Factory 4.0	6.7%	33.3%	33.3%	22.2%	4.4%
3D-Printing	2.2%	17.8%	17.8%	48.9%	13.3%

Source: Own survey, survey question Q29 (n=46)

In the next question survey participants were asked to rate the future trend for X-Shoring and Outsourcing/Insourcing.

Table 13: **Future trend of X-Shoring and Out-/Insourcing**

X-Shoring and Out-/Insourcing	To a very high extent	To a high extent	To a medium extent	To a minor extent	Not at all
Offshoring	0.0%	20.5%	34.1%	31.8%	13.6%
Nearshoring	2.2%	22.2%	33.3%	31.1%	11.1%
Onshoring	0.0%	9.1%	20.5%	36.4%	34.1%
Outsourcing	6.5%	32.6%	28.3%	28.3%	4.3%
Insourcing	4.4%	6.7%	20.0%	48.9%	20.0%

Source: Own survey, survey question Q25 (n=46)

Respondents appear to see Nearshoring as the more likely trend in comparison to Offshoring and Onshoring. Adding Outsourcing and Insourcing, most respondents indicated Outsourcing as a trend to a very high or to a high extend.

The following question asked survey participants to indicate on which countries they plan to perform the X-Shoring strategy.

Table 14: **Future continents of X-Shoring**

Continents	Asia	Europe	America	Africa	Total
Offshoring	69.2%	15.4%	7.7%	7.7%	100.0%
Nearshoring	10.5%	84.2%	5.3%	0.0%	100.0%
Onshoring	25.0%	75.0%	0.0%	0.0%	100.0%

Source: Own survey, survey question Q27 (n=24)

For Offshoring choice Asia will stay No. 1 in future as well, even when individual participants shifting away production from there, so there are also companies that see there site in Asia close to the demand too, due to the demand development. That can be seen in the strong Onshoring part for Asia. Nearshoring is expected for the participating companies almost exclusively in Europe.

Remarkable is that 31.6% adressing Europe as the most important continent for applying their Nearshoring activities, named Hungary as future Nearshoring country for their company to go to.

Consequences for the Supply Chain

It is important to notice that the Supply Chain gives input to the location decision as well as the Supply Chain receives input from the location decision. The logistics costs, delivery time, flexibility and adaptivity are important input factors for the location decision as we have seen. After the location decision is taken, the Supply Chain may have to be adapted and optimized for the new location situation

The last question asked therefore about the expected effects on the Supply Chain. The free text answers could be ranked in the following clusters.

Table 15: **Expected effects of X-Shoring on the Supply Chain (Free text transferred in cluster, multiple answers possible)**

X-Shoring	Complexity	Service	Quality	Costs	Others
Offshoring	12.0%	4.0%	4.0%	4.0%	4.0%
Nearshoring	20.0%	8.0%	8.0%	8.0%	8.0%
Both	8.0%	12.0%	0.0%	0.0%	0.0%
Total	40.0%	24.0%	12.0%	12.0%	12.0%

Source: Own survey, survey question Q25 and Q26 (n=21)

The increase of complexity is expected when Offshoring, but also is expected when Nearshoring. In addition, Nearshoring leads to a change in service, quality and costs. But even if Offshoring is expected, service, quality and costs will change according to the respondents.

In connection with the answers before, it is very likely that Nearshoring does not displace Offshoring. Offshoring still stays in place and Nearshoring will lead to additional sites with additional complexity. "The trend to globalization has increased the complexity of logistics" (Christopher, 1998, p. 146). It seems that the complexity will increase further and will stay in mind of the Supply Chain responsibles in future.

Summary and conclusion

In this paper a research gap in the academic business literature was addressed by specifically analyzing the actual location decision for production plants of manufacturing companies in Germany and trying to outlook the future development.

Nearshoring is not new. 54.9% of the participating companies in the survey already use Nearshoring as location strategy for their production plants. Despite this fact 22.4% of the participants see Nearshoring as future trend to a high extend or even to a very high extent. These companies judging Nearshoring as a trend to a high or to a very high extent, are out of all industrial segments except the Automotive manufacturer, and also all company sizes were represented. Although these figures are not tremendously different from the results for Offshoring (Current use: 55.8%; future trend to a high extend: 20.5%) Nearshoring is on the rise.

Based on the previously described information from the survey respondents a SWOT analysis can be done in order to assess German manufacturing companies and to reveal their strategic opportunities.

Strengths and weaknesses can be derived from the answers to the question about the company position in relation to the competition shown in *table 11*. Companies see their strengths in quality standards, the availability of technical systems, short term flexibility and adaptivity to changing market requirements. Weaknesses are the price per unit and the time for product ramp ups.

Looking into the future, the companies expecting according to the answers from the question concerning the trends of production methods showed in table 12 a more automated manufacturing and assembly, the use of new IT technology, robot use and Digital Factory 4.0. All these technologies can be seen as opportunities. Furthermore, Nearshoring as future trend shown in table 13 can be classified as opportunity. As threats the labor market as social topic displayed in table 10, and the complexity as main challenge for the Supply Chain reported in table 15 are likely to occur.

Strengths: • Quality standards • Availability of technical systems • Short term flexibility • Adaptivity to changing market requirements	**Weaknesses:** • Price per unit • Time for product ramp ups
Opportunities: • Automated manufacturing and assembly • Use of new IT technology, • Robot use • Digital Factory 4.0 • Nearshoring	**Threats:** • Labor market • Complexity of the Supply Chain

Figure 1: **SWOT analysis for German manufacturing companies**

Source: Own representation

This framework offers manufacturing companies in Europe and especially in Germany strategic insights and advices how to position their production plants in the near future. Furthermore, it is important for the Nearshoring attractive countries like Hungary to be prepared for this trend in

order to be able to deliver skilled employees and an attractive environment for these new plants.

Even if the number of companies participating in this study is not very high and just concentrated on German manufacturing companies, the empirical results confirm the existing research. The results of this study are quite comparable to the results from Trunick, Dittman and Kinkel, Maloca. Trunick, Dittman detected the following main reasons for Nearshoring (Trunick–Dittman, 2014, p. 24): Transportation (Logistics) costs, total landed costs, product quality and delivery time. These factors are under the Top 6 ranking in this study. Kinkel/Maloca remarked that few German companies competing for low prices and costs but rather with quality, innovation and flexibility (Kinkel–Maloca, 2009, p. 160).

The study results reveal that in order to succeed, Nearshoring should be applied and the Supply Chain has to be enhanced in order to handle the complexity due to additional Nearshoring sites.

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